03050106-060

(Broad River)

General Description

Watershed 03050106-060 is located in Richland, Newberry, and Fairfield Counties and consists primarily of the ***Broad River*** and its tributaries from the Parr Shoals dam to its confluence with the Saluda River. The watershed occupies 148,609 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Tatum-Alpin-Herndon-Pacolet series. The erodibility of the soil (K) averages 0.29, and the slope of the terrain averages 13%, with a range of 2-25%. Land use/land cover in the watershed includes: 73.8% forested land, 15.6% urban land, 6.1% agricultural land, 2.0% scrub/shrub land, 2.2% water, 0.2% barren land, and 0.1% forested wetland.

This section of the Broad River accepts drainage from its upper reaches, together with Mayo Creek, Crims Creek (Rocky Creek, Summers Branch), Wateree Creek (Risters Creek), Boone Creek, Freshley Branch, Mussel Creek, and the Little River Watershed. Hollingshead Creek (Boyd Branch, Wildhorse Branch, Metz Branch, Hope Creek, Bookman Creek) enters the river next followed by the Cedar Creek Watershed, Nipper Creek, Nicholas Creek (Swygert Branch, Moccasin Branch), Slatestone Creek, and Burgess Creek. Crane Creek and Smith Branch enter the river at the base of the watershed near the City of Columbia. Sorghum Branch, Dry Branch (Crescent Lake, Stevensons Lake), Elizabeth Lake, and Cumbess Creek drain into Crane Creek followed by North Crane Creek. North Cane Creek accepts drainage from Beasley Creek (Robertson Branch, Lot Branch, Hawkins Branch), Swygert Creek, Dry Fork Creek, and Long Branch. A portion of the Broad River is diverted into the Broad River Canal in Columbia before flowing into the Congaree River. Although depicted in the upper Congaree River Watershed (03050110-010), the canal is associated with this lower Broad River watershed; therefore any facilities or stations in this area will be included in this watershed. There are several ponds and lakes (totaling 671.3 acres) in this watershed and a total of 262.5 stream miles, all classified FW. The Harbison State Forest is located next to the Broad River just downstream of Nicholas Creek and a Heritage Trust Preserve is located along Nipper Creek.

Water Quality

Station #	Type	Class	Description
B-800	BIO	FW	CRIMS CREEK AT SC 213
B-801	BIO	FW	WATEREE CREEK AT SR 698
B-236	P	FW	BROAD RIVER AT SC 213, 2.5 MI SW OF JENKINSVILLE
B-110	S	FW	ELIZABETH LAKE AT SPILLWAY ON US 21
B-081	BIO	FW	CRANE CREEK AT US 321
B-316	P	FW	CRANE CREEK AT S-40-43 UNDER I-20, NORTH COLUMBIA
B-280	P/BIO	FW	SMITH BRANCH AT N MAIN ST (US 21) IN COLUMBIA
B-337	W	FW	BROAD RIVER AT US 176 (BROAD RIVER ROAD) IN COLUMBIA
B-080	P	FW	BROAD RIVER DIVERSION CANAL AT COLUMBIA WATER PLANT

Broad River - There are three monitoring sites along this section of the Broad River. At the upstream site ***(B-236),*** aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. In water, P,P'DDE (a metabolite of DDT) was detected in the 1995 sample. In sediment, P,P'DDE was

detected in the 1999 sample; benzo(b)fluoranthene and chrysene were measured once in 1997; phenanthrene was measured twice in 1997; pyrene was measured in 1997 and 1999; and fluoranthene was measured twice in 1997 and again in 1999. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are fully supported at this site. Further downstream ***(B-337),*** aquatic life uses are fully supported, but recreational uses are partially supported due to fecal coliform bacteria excursions.

In the drinking water diversion canal ***(B-080),*** aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards. A very high concentration of chromium was measured in 1995. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentrations suggests improving conditions for this parameter.

Crims Creek (B-800) – Aquatic life uses are partially supported based on macroinvertebrate community data.

Wateree Creek (B-801) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Elizabeth Lake (B-110) - Aquatic life uses are fully supported. This appears to be a blackwater lake, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There is a significant increasing trend in pH. Recreational uses are partially supported due to fecal coliform bacteria excursions. In addition, there was a significant increasing trend in fecal coliform bacteria concentrations.

Crane Creek - There are two monitoring sites along Crane Creek. At the upstream site ***(B-081),*** aquatic life uses are partially supported based on macroinvertebrate community data. At the downstream site ***(B-316),*** aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in 1996. P,P'DDD (a metabolite of DDT) was detected in the 1997 sediment sample, and P,P'DDT and P,PDDE (another metabolite of DDT) were measured in the 1999 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. A significant decreasing trend in total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentrations suggests improving conditions for this parameter.

Smith Branch (B-280) – Aquatic life uses are not supported based on macroinvertebrate community data and occurrences of zinc in excess of the aquatic life acute standards, including a very high concentration of zinc measured in 1996. In addition, a very high concentration of chromium was measured in 1995 and there is a significant increasing trend in total phosphorus concentration. A significant increasing trend in

dissolved oxygen concentration and a significant decreasing trend in total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / ***FACILITY NAME*** / ***PERMITTED FLOW @ PIPE (MGD)*** / ***COMMENT***	***NPDES#*** / ***TYPE*** / ***LIMITATION***
BROAD RIVER MARTIN MARIETTA/N. COLUMBIA QUARRY PIPE #: 001 FLOW: M/R	SCG730066 MINOR INDUSTRIAL EFFLUENT
BROAD RIVER RAINTREE ACRES SD/MIDLANDS UTILITIES PIPE #: 001 FLOW: 0.14	SC0039055 MINOR DOMESTIC EFFLUENT
BROAD RIVER TOWN OF CHAPIN PIPE #: 001 FLOW: 1.2 PIPE #: 001 FLOW: 2.4 (PROPOSED)	SC0040631 MAJOR DOMESTIC EFFLUENT EFFLUENT
BROAD RIVER RICHLAND COUNTY BROAD RIVER WWTP PIPE #: 001 FLOW: 2.5	SC0046621 MAJOR DOMESTIC EFFLUENT
MAYO CREEK SCE&G/SUMMER NUCLEAR TRAINING CTR PIPE #: 001 FLOW: 0.004 WQL FOR TRC	SC0038407 MINOR INDUSTRIAL WATER QUALITY
CRANE CREEK PEPSI COMPANY/COLUMBIA PIPE #: 001 FLOW: M/R	SCG250021 MINOR INDUSTRIAL EFFLUENT
CRANE CREEK RICHTEX BRICK CORP. PIPE #: 001 FLOW: 0.008 WQL FOR DO,TRC,NH3N	SC0031640 MINOR INDUSTRIAL WATER QUALITY
CRANE CREEK DITCH COLUMBIA I-20 AUTO TRUCK CTR PIPE #: 001 FLOW: M/R	SC0035416 MINOR INDUSTRIAL EFFLUENT
BEASLEY CREEK MODINE MANUFACTURING CO. PIPE #: 001 FLOW: M/R	SCG250133 MINOR INDUSTRIAL EFFLUENT
NIPPER CREEK VULCAN MATERIALS CO./DREYFUS QUARRY PIPE #: 001 FLOW: M/R	SCG730052 MINOR INDUSTRIAL EFFLUENT

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE	***PERMIT #***
RECEIVING STREAM	***STATUS***
WOODSMOKE CAMPGROUND/FAMILY	40-307-0011
WILDHORSE BRANCH	ACTIVE
CAPITAL CITY CAMPGROUND/FAMILY	40-307-0003
CRANE CREEK TRIBUTARY	ACTIVE

Land Disposal Activities

Landfill Activities

SOLID WASTE LANDFILL NAME	***PERMIT #***
FACILITY TYPE	***STATUS***
RICHLAND COUNTY SANITARY LANDFILL	401001-1101 (DWP-065)
DOMESTIC	CLOSED
RICHLAND COUNTY	401002-1201
C&D LANDFILL	--------
OLD CITY OF COLUMBIA LANDFILL	--------
DOMESTIC	CLOSED
DARTMOUTH AVENUE C&D DUMP	--------
C&D LANDFILL	CLOSED
KNIGHTNER STREET C&D DUMP	--------
C&D LANDFILL	--------
CRAWFORD ROAD C&D DUMP	--------
C&D LANDFILL	--------
BREAZIO ROAD C&D DUMP	--------
C&D LANDFILL	--------
ETHELS AVENUE C&D DUMP	--------
C&D LANDFILL	--------
RICHTEX BRICK CORP.	403302-1601
INDUSTRIAL	--------
CAROLINA WRECKING ST C&D LC LANDFILL	402451-1301
C&D LANDFILL	CLOSED

Mining Activities

MINING COMPANY	***PERMIT #***
MINE NAME	***MINERAL***
MARTIN MARIETTA MATERIALS	0099-79
NORTH COLUMBIA QUARRY	GRANITE
MARTIN MARIETTA MATERIALS	0101-79
HARBISON QUARRY	SHALE

RICHARDSON CONSTRUCTION CO.	0738-79
RICHARDSON'S MONTICELLO	CLAY
BORAL BRICK, INC.	0448-79
LABORDE MINE	CLAY
RICHTEX CORPORATION	0538-79
MANNING	SHALE
TARMAC MID-ATLANTIC, INC.	0129-79
DREYFUS QUARRY	GRANITE

Water Supply

WATER USER	***TOTAL PUMP. CAPACITY (MGD)***
STREAM	***RATED PUMP. CAPACITY (MGD)***
CITY OF COLUMBIA	90.0
BROAD RIVER CANAL	72.0

Growth Potential

There is a high potential for growth in this watershed, which contains the northwest portion of the Greater Columbia Metropolitan Area and ample water and sewer service. In addition, the watershed contains the Town of Peak and portions of the Towns of Irmo, Chapin, Little Mountain, and Blythewood. The I-26, I-20, and I-77 corridors, along with the U.S. Hwy. 321, U.S. Hwy. 21, and U.S. Hwy. 176 corridors, will serve to increase residential, commercial, and industrial growth in the Greater Columbia Area. The northwest portion of the city (St. Andrews, Irmo, and Harbison) will continue to develop as a regional commercial hub for the area. Industrial development along the I-77 corridor is expected to remain strong due to the aggressive economic development policy by the City of Columbia and Richland County. The Killian and Blythewood areas in particular are expected to see increased construction activity. There is a high potential for growth on the eastern edge of the watershed, in Northeast Richland County. New commercial developments (The Village at Sandhills, Rice Creek Village, Sparkleberry Square, Sparkleberry Crossing) are being constructed and are expected to further increase the growth of a rapidly growing residential area.